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NOTES ON THE SEAL AND WHALE FISHERY, 1895.

By THOMAS SOUTHWELL, F.Z.S.

THE severe financial crisis through which our colony of Newfoundland passed in the winter of 1894-5 caused the important harvest of the Seal Fishery to be looked forward to with unusual anxiety, and it was hoped that a successful voyage would, to some extent, alleviate the distress which had weighed so heavily upon all classes, and rendered that memorable winter the blackest in the colonial history. To this end some special regulations were passed, and the steamers which sailed on March 9th (the 10th being Sunday), were allowed to extend their voyage to May 10th instead of April 20th (the usual closing day), and second trips were permitted. The result, as will be seen, was most satisfactory from a commercial point of view, and highly beneficial to all concerned.

Of the twenty steamers which prosecuted the fishery in the past season, seventeen turned their attention to the East Coast, and three to the Gulf of St. Lawrence. During the entire winter westerly winds prevailed, and the ice was off the land; the Seals were struck by the first section of the fleet on March 14th, some sixty miles eastward of Belle Isle, and about eleven of the steamers did well, the other six being beset with ice near Funk Island, and eventually they came off badly. The 'Aurora' was the first to get amongst the Seals, and returned to St. John's on March 26th with 29,916 pelts. On May 8th the same vessel returned from a second trip, with another catch of 3896, making

33,812 Seals. Capt. Jackman stated that on his second trip he discovered a patch of ice, on which a large body of Harp Seals had whelped, and had apparently not been disturbed; this was about sixty miles N.E. of the southern patch, which had proved so productive earlier in the season. In the Gulf of St. Lawrence the success early in the season was only partial, owing to the prevalence of westerly winds keeping the ice packed on the Newfoundland coast; but here the extension of time stood them in good stead. Capt. W. Bartlett, of the 'Panther,' had a somewhat novel experience in this respect; he got a few old and young Hoods in the spring, but husbanded his coals, determining to stay out as long as possible, and was rewarded by getting several thousand old Harp Seals, about the end of April or beginning of May, between Prince Edward's Island and Picton, where he found them quite plentiful; and, in his experience (it being good sealing ground), they remain about there every year till the ice melts. This year there was not a great deal of ice, but as a rule the steamers find it too heavy to get so far into the Gulf. Had Capt. Bartlett been compelled to discontinue work on April 20th, he would not have got any old Seals to speak of. Mr. Thorburn tells me that he never remembers any steamer before this year getting any quantity of old Seals (*i.e.* old and Bedlamer Harp Seals) in the Gulf. Referring to the old Hoods, he says they leave the Gulf and East coast between April 15th and 20th, going down to Cape Harrison on the Labrador coast; and out of ten or fifteen thousand old Seals taken at the end of April or beginning of May, there will not be ten Hoods; they seem to disappear all at once.

The twenty steamers which left the Newfoundland ports captured 270,058 Seals; these were fairly evenly distributed, the average of the whole twenty vessels being 13,500. Six steamers captured over 15,000 each, the 'Terra Nova,' the only Dundee vessel present, taking the lead with 33,886, followed by the 'Aurora' 33,812, 'Neptune' 32,308, 'Wolf' 30,292, 'Ranger' 19,022, and 'Algerine' 18,594; five others had more than 10,000 each, and the remaining nine varied from 516 to 7462. In addition to the 270,000 here referred to, some 30,000 others were captured, making a probable total of 300,000.

The net value of the produce brought in by the steamers, at the time of landing, was estimated at about £77,824; but about a month later the value of skins suddenly advanced very considerably,



in sympathy with the advance in leather, and further large sums were made by those who manufactured them, much to the advantage of the colonists.

The Greenland sealing in 1895 has been a failure, both as regards the young and old sealing. The Scotch vessels took no part in it (the only Seals brought home being 4500 from the station in Cumberland Gulf by the 'Alert'), and the fourteen Norwegians appear to have secured about one cargo between them. I have no precise figures with regard to the catch, but it is evident they are now paying the penalty of their imprudence in times past; the extended close time so strenuously advocated by Capt. David Gray, and to which the Norwegians would not consent, had it been adopted, would, in all probability, have staved off the inevitable result for some time; but nothing short of entire relief from molestation for a lengthy period could have saved the Greenland pack from eventual extermination. In 1860, twenty-one British ships captured 67,876 Seals in the Greenland seas; in 1895, the British vessels have altogether deserted the fishery, and the fourteen Norwegians had to be content with something like the odd thousands.

There were no British vessels in pursuit of Bottle-nose Whales, but the Norwegians are reported to have been fairly successful in this branch of the industry.

The season of 1895 is again marked by the absence of any Peterhead vessel in the Arctic Seas; a fleet of seven steamers left Dundee, two of which, the 'Active' and the 'Polar Star,' went to Greenland, the remainder to Davis Straits.

The 'Polar Star' left Dundee on April 9th, and Lerwick on the 15th, reaching the whaling grounds about the end of the month. The frost was very severe, and for several days she was frozen up; but on May 19th five Whales were seen, and one struck, which, after running out twenty-five lines, was lost, three of the boats making their way back to the ship with very great difficulty. The same misfortune occurred on June 1st through a line breaking, but both these fish, as will be seen, were accounted for by her colleague the 'Active.' On June 6th she took her first Whale, a fair-sized one, with 10 ft. 6 in. bone. Bad weather then set in, and she was driven off the whaling ground; but early in July she succeeded in capturing a second Whale, about equal in size to the first, the two yielding 32 tons of oil and 80 cwt.

of bone. On August 19th the 'Polar Star' bore up for home, arriving at Dundee, all well, on the 28th.

The 'Active' had a very successful voyage, capturing nine Whales, an unheard-of number for Greenland of late years. She left Dundee on April 10th, and Lerwick on the 15th; favoured by wind and weather, the land of Spitzbergen was made on the eleventh day after leaving Lerwick, and Whales were almost immediately sighted, but, owing to severe frost and gales, little could be done in the way of capture; fortune however was with them, and two good Whales were killed unusually early in the season. Other Whales were met with early in May, and on the 20th, a large Whale was harpooned in a heavy gale of wind which lasted three days, and after a struggle for fourteen hours, and a loss of fifteen lines from fouling in the ice, it was killed. The next Whale gave them very little trouble: it was one of those previously mentioned as lost by the 'Polar Star,' and was found to be floating dead. On June 6th a large Whale was struck, and the harpoon drew; but fortune again favoured them, for a second one which had been harpooned by the 'Polar Star' and lost, was picked up. Both these Whales, having once been "loose," were the property of the finder, although in each case the harpoon of the 'Polar Star' was found in them. Three others were taken in the same vicinity, making eight Whales killed before the middle of June. It was not until July 26th that the ninth and last Whale was killed, and, after continuing the search until August 21st, the 'Active' departed for home, arriving at Dundee on the 31st, with a living Polar Bear as passenger. The nine Whales yielded 81 tons of oil and 85 cwt. of bone. The success of the Greenland fishery seems to be due to the condition of the ice, and the favourable position of the south-east pack.

The accounts from Davis Straits are unanimous as to the failure of the fishery there being due to the great quantity of ice which afforded abundant cover to the Whales, very few of which were seen and only three captured. The ice never cleared out, and not a single Whale was seen in the fall. Some of the vessels had great difficulty in extricating themselves at the close of the season. Of the five Dundee ships in the Davis Straits fishery, two only were successful in taking Black Whales; two others had 715 and 709 White Whales respectively; and the 'Terra Nova,' which, however, as before mentioned, had been very successful at the Newfoundland

sealing, brought home only three White Whales and seven Walrus. In Dexterity Bay, the mate of the 'Terra Nova,' when on shore with a shooting party, discovered the remains of some twenty or thirty Esquimaux. The skeletons were of various sizes, and the bones much bleached, showing that they had been exposed a considerable time. To all appearance the remains of the men had been placed apart from those of the women and children; beside the former were placed their fishing and hunting gear, while near the children lay their toys and miniature weapons. The sailors left this desolate burying-place as they found it.

The 'Eclipse' killed her two Whales off Coutts's Inlet, and had not another chance; the 'Nova Zembla' also killed her single Whale in the same month of July. In Elwin Bay, White Whales were as usual plentiful, and it was there that the 'Balæna' and the 'Esquimaux' made the captures before alluded to. The 'Alert' brought home from Cumberland Gulf, in addition to the Seals already mentioned, the produce of three Black Whales, consisting of 20 tons of oil and 30 cwt. of bone.

The total produce of the Whale fishery was 17 Black Whales, 1436 White Whales, and 16 Walrus; these yielded 349 tons of oil (about 178 tons of which was White Whale oil), and 9½ tons of bone. The oil may be valued at £17 per ton, or £5933; and the bone at £2000 per ton (£2500, I am informed, is now being asked by holders), or a sum of £18,025. The total produce being £23,958, against a total of £27,452 in the season of 1894.

In the 'Board of Trade Journal' for November last (vol. xix. p. 586) are some particulars of a fishery for Whales in the Bay of Islands, New Zealand, culled from a report published by the Chief Inspector of Factories, at Wellington, New Zealand, in the 'Journal of the Department of Labour.' This industry is carried on at Whangamumu, a small harbour on the south side of Cape Brett, where it was commenced in 1891. The Whales pass in large numbers between the months of May and August going north, and again between October and December returning south. They pass close in shore, and are taken in nets made of strong rope, iron rings taking the place of the knots in the usual netting; they are 50 fathoms long, divided into 10 fathom sections, with a mesh of 6 feet. The Whales become entangled in the nets, and are killed by lances in the usual way. The produce is oil and

manure. The Whales taken are said to be "Humpbacks." A second station has been established within a few miles, and the combined produce has "so far" amounted to 17 Whales, but it is not clear what period of time is covered by the expression "so far." Except that the fishery, at present, is from the shore, the treatment of the produce seems to be similar to that pursued by the Norwegians off the Finnmarken Coast.

I have, as on former occasions, to thank Mr. David Bruce and Mr. R. Kinnes, of Dundee; and Mr. Michael Thorburn, of St. John's, Newfoundland, for their kindness in supplying me with information.

NOTES ON THE ORNITHOLOGY OF NORTHAMPTONSHIRE
AND NEIGHBOURHOOD.

BY THE RIGHT HON. LORD LILFORD, F.L.S.

I CONTINUE my notes from the end of 1894 (Zool. 1895, p. 56) :—

JANUARY, 1895.

3rd. I received from Mr. Mitchell, station-master at Ditchford, L.N.W.R., a living cock Sparrow of the blackest Cockney type, that had been caught a few days previously near the station. After one or two baths this bird regained the normal appearance of his kind, and I record the occurrence as the only one of the sort that has come to my knowledge in our county. It is difficult to understand why this fictitious melanism should be confined to a solitary individual.

4th. Three Golden Plovers were killed by one of our game-keepers from a flock that he computed at 180, by far the largest congregation of this species of which I have heard for many years in this neighbourhood.

5th. Mr. G. Bazeley, of Northampton, under this date, informed me that a Puffin was killed by a pike-fisher on the Nen at Leathe's mill, near Ecton, on 2nd inst.

6th. Mr. Walter Stopford informed me that he noticed a flock of ten Common Gulls near Tichmarsh on 1st inst.

7th. My falconer reported two male Peregrines chasing each other and "toying" over and about the house at Lilford for some minutes.

11th. Very severe frost. The falconer reports a large number of Mallard, two Pintails, three Teal, and three Pochards on the river below Lilford, and hundreds of starving Fieldfares about the meadow-fences; also an adult male and two female or young Smews; the latter birds were seen again in the same locality on 12th inst. by my informant.

15th. A cold thaw. The falconer shot at a Tufted Duck high in air close behind the house at Lilford, just "tipped" her in the wing, and brought her down otherwise uninjured to my fowl-pond, where she found many of her own and other allied species. Three Mute Swans paid a visit to this pond to-day, and seem disposed to remain with us. Three Canada Geese were seen on our river near Lilford.

16th. I received a young Snow Bunting, "in the flesh," from Mr. G. Bazeley, of Northampton, with the information that it was caught in a meadow near that town a few days previously.

19th. I had a letter from Mr. John Crisp, of Warmington, informing me that he had recently got very close to three *wild* (?) Swans on the river near that place; he also tells me of having observed some Grey Wagtails taking small fishes from the gravelly shallows near Elton mill, and devouring them upon the dry bank of the river close at hand. Mr. Crisp also mentions that he only just managed to save the life of a Kingfisher by running up and driving off a Sparrowhawk from a bush into which it had "put" the former bird.

20th. Lord Henry Grosvenor told me that he flushed a Bittern four times in the garden at Bulwick on Dec. 14th ult.

21st. Our river in full flood. The decoy-man told me of some 300 Mallard in the flooded meadows; and that he had about 260 of these birds and ten Teal on the decoy on 18th inst., when the water was already too high for a "drive." He tells of seeing six Tufted Ducks on the river on 15th inst. and seventeen Geese on 19th. He came up to see me again in the evening to report that a big Otter had got into the decoy-enclosure; this readily accounts for the fowl getting out of it.

24th. I received a Little Auk in the flesh from Rev. Henry H. Slater, of Thornhaugh Rectory. This bird was picked up at Wansford Bridge on 22nd inst. Another caught and brought into a cottage at Wadenhoe by a cat was also sent to me; and I received a third from Brigstock without any particulars of capture.

25th. Mr. G. Bazeley, of Northampton, writing under date of yesterday, informed me that a female Waxwing was killed at Brington on 22nd inst, and had been sent to him for preservation.

26th. One of our gamekeepers brought to me the remains of a Little Auk found this morning near Lilford Wood; the head and neck of this bird had been eaten by some beast or bird of carnivorous disposition.

27th. Very severe frost, our flooded meadows were covered with thick ice, and a good many Mallard were sitting thereon.

29th. Nineteen degrees of frost, the Thrush family suffering very severely. Immense numbers of Redwings reported to me.

30th. Mr. W. Tomalin informed me that another Little Auk was picked up at Brington on 25th inst., and was sent to Mr. W. Bazeley, of Northampton, for preservation. My son reported two "very big" Gulls seen by him on Tichmarsh Manor, near Molesworth.

31st. Mr. John Crisp told me of having picked up a starved Kingfisher near Warmington, and that some 500 Mallard and Wigeon were frequenting the river in that neighbourhood.

FEBRUARY.

1st. Mr. Frederick Hodgson told me that he recently saw a large flock of Snow Buntings near Aldwincle.

2nd. A very clean specimen of Little Auk was recently picked up dead near Tichmarsh, and sent in flesh to me by the Rev. F. M. Stopford, to whom it was brought by the finder. Mr. H. Field, of Kettering, wrote informing me that a Little Auk was brought to him yesterday, for preservation, from Geddington, and that his brother had received a Waxwing recently shot near Kettering. Mr. J. Crisp brought me a Little Auk in flesh that was picked up yesterday near Elton. Mr. G. Bazeley sent me a very dull-coloured female Waxwing, stuffed, with the information that he had received it from Burton Latimer on 29th ult.

3rd. My tame Ravens commenced to build in the site from which a brood of four was hatched out last year (see my notes for April 30th, 1894), but the female parent of said brood died not long after the young were taken, and I am not certain about the sex of her successor, which I received with her, from a nest in Andalusia some years ago.

5th. I was given to understand that the three Mute Swans

that frequent our home-ponds (see Jan. 15th ult., *antea*) are wanderers from Lamport, and belong to Sir Charles Isham. Mr. Walter Stopford, who took a stroll in pursuit of wildfowl along our river and brooks between Thrapston and Aldwincle, brought in three Teal out of six seen, five Tufted Ducks from a bunch of ten, and one Snipe of four seen. He reported many Mallard sitting upon the ice, two Pochards at which he failed to get a shot, and some forty Wood Pigeons busily engaged upon some "greens" in the Aldwincle allotments. Twenty-two degrees of frost and heavy snow-showers in late afternoon.

6th. Twenty-five degrees of frost. Amongst the birds that come to feed on the scraps thrown out for them on our upper terrace in the flower-garden I to-day noticed one that at first sight, in profile, I took to be a Ring Ouzel, but soon discovered to be a male Blackbird with a broad white half-collar on the right side of neck and a few white feathers about left side of head. This bird was taken alive and uninjured in the afternoon, and transferred to the aviary. Our wild-fowlers brought in three Mallard, two Wigeon, one Pochard, one Tufted Duck, and one Snipe, and report many more up the river, but the whole valley disturbed by skaters. Twenty-nine degrees of frost registered at midnight in our kitchen-garden.

7th. I received a very fine male Waxwing, stuffed, from Mr. G. Bazeley, with the information that it had been killed near Daventry with a catapult about the 2nd inst.

8th. Our garden barometer stood at zero at daybreak, but does not register below that point. Three Coots (rare birds with us of late years) were disporting themselves with many Water-hens on a trickle of half-frozen water below Lilford Locks. Our gunners brought in five Mallard, one Wigeon, and a Snipe.

9th. Twenty-seven degrees of frost. I received as a present from Mr. G. Bazeley a perfectly black female Bullfinch, caught, as the donor informs me, in August last, at Duston, near Northampton. The gunners brought in two Snipes, a Wigeon, and a Goldeneye, and tell of seeing a Water Rail, the only one as yet reported to me this season.

11th. The frost diminishes, only eleven degrees registered. The Lamport Swans (see 5th inst., *antea*) were caught up and sent back to their owner, but I hear of three more of the same species between Thrapston and Aldwincle to-day.

12th. The frost resumed its severity, 25 degrees were registered before daylight this morning. Stock Doves evidently pairing and very clamorous.

13th. Sky Larks coming into the kitchen-garden at Aldwincle, in large numbers: 23 degrees of frost.

15th. Our gunners killed five Mallard and a Wigeon up the river, and report the three Swans (see 11th inst., *supra*) as hanging about the Aldwincle meadows.

16th. I received from Mr. G. Bazeley an immature Red-throated Diver in flesh, killed yesterday close to Northampton. Two Bramblings in flesh received from the station-master at Ditchford, L.N.W.R., with an enquiry as to what they are.

21st. I received a female Scaup alive from the Borough Fen decoy, near Peakirk.

23rd. My son reported a large flock of Stock Doves on Pilton, with a Peregrine in close attendance upon them. Hedgesparrows in full song.

25th. Several large Gulls flying over Lilford, and very noisy.

27th. My son reported a single Peewit, the first seen for many weeks in the neighbourhood, on a meadow below Lilford.

28th. I saw from my up-stairs window an adult Mute Swan on the river below our stone bridge. I note this, because none of these birds are kept within a considerable distance of our house. Twenty Golden Plovers were seen below Lilford, and small flocks of Peewits in our upper meadows.

MARCH.

2nd. The crops of several Wood Pigeons killed yesterday and to-day were fully and almost exclusively crammed with leaves of the Lesser Celandine.

6th. The falconer tells me that he heard the jarring of Little Spotted Woodpecker about ten days ago for the first time this year; also that the Song Thrushes have been in full song for some days past. Mr. W. Bazeley, writing yesterday, tells me that he has a Little Owl, shot near Northampton, in his hands for preservation; he cautiously avoids giving me the name of the murderer of this bird, who, if the bird was killed since 1st inst., is liable to a penalty of £1.

8th. A Whimbrel was seen and heard to-day, and on 11th inst., near our decoy, by the decoy-man, who is perfectly acquainted

with this bird as distinct from the Curlew. This is a very unusual time for the appearance of the Whimbrel in our district. I hear of large numbers of Siskins in the alders near the river.

15th. The Ruffs in the aviary are beginning to resume their "shows."

16th. Eight Whoopers were seen flying about Lilford by my nephew, the falconer, and others.

17th. The Whoopers above mentioned were seen upon the river below Lilford, and subsequently on wing, by my two sisters and niece, two of our guests, and a great many others, some of whom reported the flock as consisting of nine birds. I received from the Rev. W. Hopkinson, of Sutton Grange, near Wansford, a female Ringed Plover in flesh, killed near Castor a day or two ago. This species is by no means very uncommon at the seasons of migration in our valley; but this is the first freshly-killed specimen that I have handled for at least thirty years.

18th. A very clean specimen of an adult Greyhen was shot upon the manor of Wigsthorpe this afternoon, and brought to me. The shooter did not recognise the bird till he picked it up. I am only acquainted with one previous occurrence of Blackgame in Northamptonshire (see Zool. 1851, p. 3278).

19th. The crop of a Wood Pigeon shot and examined to-day contained forty-six horse-beans; another, killed on the following day, had a good handful of field-peas and a few elm-buds in the receptacle just mentioned.

20th. A Stock Dove sits upon two eggs in a hollow ash in our deer-park.

25th. Lord Huntly, writing yesterday, informed me that he received a male Garganey alive a few days ago from the Borough Fen decoy, where it was taken on 18th inst.

26th. A Water Rail seen at the decoy.

28th. Fifteen Wigeon seen upon the river below Lilford. Many nests of Song Thrush and one or two of Blackbird, containing eggs, have been reported to me during the last ten days.

APRIL.

2nd. Peewits' eggs brought in for the first time this year.

5th. One of our gamekeepers tells me that, while searching for Peewits' eggs on Achurch meadows, he saw two Curlews, three Snipes, and four Golden Plovers; one of these last, as he declares,

fairly "mobbed" him, after the manner of a breeding Peewit; but, from information that will be found further on, I am inclined to think that he is mistaken in his identification of these four birds.

10th. The gamekeeper above mentioned says that his four Golden Plovers are still haunting the same locality, and have "black breasts."

11th. Another gamekeeper, well acquainted with Golden Plovers in their breeding haunts, went at my request to the locality above mentioned, and confirms the report of his colleague, adding that he saw a bird that he believes to have been a Ruff.

12th. I heard from the Duke of Buccleuch's head gamekeeper, at Boughton, that while beating Boughton Wood for rabbits, on 9th inst., they flushed a Woodcock that disappeared behind a rise in one of the broad "ridings." On going to look for this bird they found that it had been caught, killed, and partially eaten by a Sparrowhawk, which flew reluctantly from her "quarry."

17th. Mr. John Crisp sent me a fine adult Lesser Black-backed Gull in flesh, killed yesterday at Elton. The Rev. Edward Moore told me that a Partridge had laid eggs in a domestic Duck's nest containing three of the rightful owner's, in the Rectory gardens at Benefield.

18th. Mr. F. Hodgson reported seeing several Redshanks, apparently breeding, on Achurch meadow. I strongly suspect that, in spite of the "black breasts" alluded to above, these are the "Golden Plovers" of my previous informant.

19th. Two Woodcocks were reported to me as seen to-day in our woods, and are the last of which I had any information before October. One of our gamekeepers reported having to-day seen four birds about a bend of the river near Achurch—known as "Starnel Corner"—that must have been either Little or immature Black Terns.

20th. My brother-in-law, who went to look after the supposed Golden Plovers in Achurch meadow, saw three Redshanks, but no Golden Plovers (see 11th inst., *supra*). Miss F. Wickham wrote to me telling of several Redshanks evidently nesting upon Perry Herne (a rushy meadow below Oundle, regularly frequented by these birds during the summer), and adds that she saw a considerable flock of Fieldfares, and saw and heard a Snipe "drumming" in the same locality to-day.

28th. Mr. John Crisp told me that twenty-four Wigeon and

one Teal were still lingering on the river near Elton, and that a few Fieldfares were still thereabouts.

MAY.

2nd. A large diving bird, reported to me by Mr. F. Hodgson, and one of the gamekeepers, as seen on the river near Achurch, could only be Great Crested Grebe.

4th. Whilst out with the Bucks Otter hounds to-day, I saw three Redshanks in Achurch meadow; these birds flew around at a great height when disturbed by the hounds, and were very clamorous, evidently having eggs or young in the meadow-grass.

6th. The falconer reported finding a nest of the Common Heron ready for eggs in a small spinney on Braunsea Brook, near Aldwincle.

20th. On revisiting the Herons' nest above mentioned to-day, the falconer found that it had evidently been robbed by some human thief. I have little doubt that the cause of a pair of Herons' selection of this spot for building was the destruction of many of the nest-bearing trees in the Heronry at Milton, by the disastrous hurricane of March 24th ult.

27th. A nest of Common Flycatcher, containing three eggs, and built in a cylindrical cement-tin, about three parts full, was brought in to me. The tin in question was on a shelf in a temporary shed, constantly occupied by masons employed in repairs to our stone-work about the house, damaged by the hurricane of March 24th ult. The Flycatchers eventually took off a brood of four young birds in safety, in spite of having had their nest continually brought out of the shed for exhibition. I was out with the Otter Hounds again to-day, and found the three Redshanks still about Achurch meadow, in a frantic state of excitement, but the grass was too long and strong to allow of a search for the young birds that were certainly not far off. This is the first proof positive that I ever had of the breeding of Redshanks upon my own property in this county. Our meadows seem to be unusually full of Corncrakes.

JUNE.

8th. A pair of Great Tits have a brood of young in a large circular leather Indian bottle, with very small orifice, suspended at about $3\frac{1}{2}$ feet from the ground, in a cedar in our flower-garden; a brood of Redstarts were hatched out in this bottle last year.

12th—19th. I was informed of three or four nests of Little Owl, with eggs and young, in our immediate neighbourhood.

21st. Mr. H. Wickham told me that a Red-legged Partridge was sitting upon her eggs in a nest in the ivy upon the wall of Barnwell Castle.

24th. The falconer told me of a pure white Chaffinch, constantly seen about our pleasure-grounds by himself and others; I had a glimpse of this bird to-day, and have frequently heard of it since, till within about a fortnight ago,—December 26th.

JULY.

4th. I was assured that several pairs of Hawfinches were breeding in the tall lime trees near Drayton House. This species has been remarkably scarce about Lilford this year. Two pairs of Bank Martins have nests in the old stone facing of a bank on the side of a sunken road between the house and farm-buildings at Lilford. This is the first time that I have heard of a nest of this species nearer to us than the colony in the gravel-pits at Aldwincle, about three miles off.

8th. I received alive from Mr. W. Allen, of Raunds, a small foreign Finch, that I cannot identify. The donor informed me that it was taken in a garden at Raunds, in August, 1893, by means of a trap-cage.

11th—12th. I noticed a very unusual congregation, some nineteen or twenty Common Sandpipers haunting the river's sides close to Lilford.

14th. I was informed of the shooting of a White Swallow at Maidwell on 1st inst.

15th. Two Hobbies were reported by the decoy-man as hawking over the meadows near our decoy. This is the only record of this species that has as yet reached me this summer.

22nd. Three Common Sandpipers were taken at the decoy, and placed in our aviary.

26th. A Green Sandpiper was seen at the Park ponds.

AUGUST.

5th. A very unusual number of Swifts hawking over the river near Lilford.

14th. Young Pied Woodpeckers are very noisy in the high trees near the boat-house, and on the bridge-island. Two broods

at least, of this species must have "come off," very near the house at Lilford.

15th. Tawny Owls have been for many days past, and still are, hooting vigorously from daylight to dark, but are comparatively silent during the dark hours. Grey Wagtail seen for the first time this season.

30th. Dr. T. Walker, of Peterborough, reported having recently seen a White Swallow between that town and Whittlesea.

31st. First large flock of Peewits of the season, seen by me near Barnwell Mill.

SEPTEMBER.

2nd. Mr. John Cordeaux informed me by letter that on this day he saw some young Red-backed Shrikes at Welford, in this county, that could not have left the nest more than a day or two ago.

6th. A very young Common Redpoll taken at Pilton. I only record this as I am not aware that a nest of this species has ever been found nearer to Lilford than the neighbourhood of Stamford.

9th. My son reported large Gulls passing over Pilton to the southward. The decoy man reported ten Teal, first of the season, on the decoy.

15th. A quantity of Thrushes at work at the Irish yew berries in the terrace garden. These birds have been, comparatively speaking, scarce here throughout the summer, and I believe that those seen by me, as above mentioned, were travellers; at all events, on the following day, at the same time, and under precisely the same conditions of weather, I could not see one of these birds in the garden during the five or six hours that I was sitting there. Mr. W. Tomalin informed me that the last Swifts were seen at Northampton on the 22nd ult.

18th. Mr. G. M. Edmonds informed me that a Golden Oriole was seen in his garden at Oundle to-day, by an "unimpeachable witness."

19th. One of our gamekeepers saw a flock of Geese passing over Tichmarsh about a week ago. A Quail was killed by Mr. W. Tomalin, in the parish of Hackleton.

30th. The falcon reported the first Redwings of the season seen close to Lilford.

OCTOBER.

6th. A White Starling is often seen about a meadow near

Lilford. The White Chaffinch, previously mentioned, is still haunting our pleasure grounds.

7th. I saw the first Fieldfares of the season flying over the house at Lilford.

12th. First report for the season of Grey Crow near Lilford.

13th. My nephew reports myriads of Wood Pigeons in our home plantations.

17th. First report of Woodcocks for the season: one shot upon the Aldwincle manor; another killed by telegraph wires on the L. & N. W. Railway, near Wigsthorpe.

18th. Three Wigeon, the first of the season on our decoy.

24th. I received from Mr. W. Tomalin, a Quail in the flesh, picked up, as he informed me, under telegraph wires in St. Giles's Square, Northampton, yesterday; he also announced that another of these birds had been shot recently at Hackleton.

26th. The falconer reports a considerable passage of Sky Larks to the south-west, along our river's side.

30th. Capt. F. A. Irby told me of seeing thousands of Fieldfares about a spinney close to Aldwincle. The decoy-man tells of a solitary Golden Plover seen to-day; the first of the season.

NOVEMBER.

6th. A Water Rail, the first of the season, seen at the decoy.

14th. The falconer killed a very fine pair of Wigeon, from a bunch of five, on one of our home-ponds.

15th. I received from Mr. H. Beauford, of Sudborough, a very clean specimen of the Forked-tailed Petrel in the flesh, that was picked up at Lyveden, on 13th inst.

16th. I heard from Lady Knightley that, on September 15th ult., she saw a large Hawk in her garden at Fawsley, with a small bird in its talons; her belief that this Hawk was a male Hen Harrier is almost positively proved by the description that she was good enough to send to me.

21st. A Whimbrel was identified by the decoy-man near Thrapston.

22. A Jack Snipe killed near Wadenhoe: this is the first occurrence that has come to my knowledge this season in our neighbourhood, and nearly two months later than the average date of first appearance here; but Snipes are exceptionally scarce hereabouts this year.

25th. Mr. H. Beauford sent me a Little Owl in flesh, that was caught by a dog near Sudborough on 23rd inst. Mr. W. Bazeley reported that he had recently received several Short-eared Owls from various parts of the county for preservation; and on 29th inst. sent me a good specimen of this species that was killed by telegraph wires at Hardingstone, near Northampton.

30th. The falconer tells me that a good many Mallard, Teal, and Wigeon come in at evening "flight"-time to a small pond in our pleasure-grounds. The Mallard are, no doubt, attracted by the exceptionally heavy crop of acorns fallen from a tree in the enclosure, but, unless it be for company's sake, I cannot tell what is the attraction for the other species. Twenty-seven Golden Plovers were observed by several members of our shooting party on Aldwincle.

DECEMBER.

3rd. I received a fine adult male Gadwall, and a Tufted Duck, alive, from the Borough Fen decoy. It is remarkable that, although the Gadwall has occurred upon our decoy here on several occasions, the proprietor of the other decoy did not recognise the bird sent to me, and enquired of me if it was an "American Wigeon!" Two Wild Geese were seen in the meadows below Lilford on the 2nd, and reported to me to-day.

9th. Vast numbers of Wood Pigeons are coming to our plantations and pleasure-grounds for the acorns, of which there are hardly any in the neighbourhood except in these places. Many of these Pigeons are deficient in their wing feathers, some of which are not more than a quarter grown, and still partially "in quill;" others of these birds are affected with tumours about their heads and the roots of their bills; these conditions are prevalent in both old and young birds.

12th—20th. I received many reports of Peregrines seen in the neighbourhood of Lilford.

31st. The Rev. F. M. Stopford reports a very large number of Bramblings about a fence on Aldwincle Manor yesterday.

I do not trouble you with a record of vernal arrivals on this occasion, as they by no means assuredly indicate the actual earliest dates of appearance; but I may mention that the Wood Warbler was very much more common than usual in our neighbourhood; and that the first nest of this species that I have

known of in Lilford for many years, was destroyed before it was quite finished, by the trampling of the Otter hounds on our Bridge Island in May. The Hobby was very seldom seen or heard of. Our other vernal migrants were, I think, in about their usual numbers, but there was a marked diminution in our breeding Starlings, Blackbirds, Throstles, and Mistletoe Thrushes.

I regret that, owing to my negligence about writing to Mr. H. H. Slater, I did not receive his notes from Thornhaugh till I had sent in my own for 1895; I therefore add them here. As will be seen, they have the merit of being personal observations, whilst mine, alas! are for the most part, of necessity, second-hand reports.

Jan. 5th. Snow and frost; many birds are availing themselves of the shelter of my garden. Four Hawfinches feeding on the ground under a yew-tree (which had borne a very abundant crop of berries) upon the hard seeds which the other birds had dropped. A flock of Redpolls in the grass-field by the brook. *Turdidae* strongly in evidence; enormous numbers of Fieldfares; many Blackbirds and common Thrushes; Redwings apparently not numerous. A Dormouse brought to me from the Bedford Purlieus.

8th. Bedford Purlieus. Still wintry. I counted nineteen Squirrels in about an hour, all on larches, feeding upon the cones, which I think they prefer to anything. I find that they are very fond of the green bark of spindle-tree (*Euonymus*), and peel the twigs entirely. I thought that Rabbits and Mice must have assisted them, but the height above ground excluded the former, and the teeth-marks the latter. The woodmen here tell me that this is a usual occurrence.

22nd. A Little Auk caught alive on Wansford Bridge by F. Percival. I begged it, and sent it to Lilford.

23rd. One Woodcock yesterday, and four to-day, while shooting the Purlieus; presumably on their north-eastward journey.

Feb. 5th to 13th. Astonishing temperatures, registered in my garden, in an open sheltered place, three feet above ground.

February	5th	(night of)	+	0.5°	Fahr.
"	6th	"	—	1°	"
"	7th	"	—	2.5°	"
"	8th	"	—	1°	"
"	9th	"	0°	"	
"	12th	"	0°	"	
"	13th	"	—	1°	"

16th. Two more Little Auks reported. One shot near Alwalton (which Capt. Vipan got—I skinned it for him); the other at Whitewater.

March 24th. A frightful wind, lasting for about an hour and a half; its worst fury, fortunately, for only half an hour. It injured my trees dreadfully, and tore up by the roots the largest *Platanus occidentalis* I had ever seen. And the poor rooks! We counted sixty-three nests on Friday; this evening only seventeen were left. Some of the sitting birds stuck to their nests till the trees or branches reached the ground. One we found pinned to the ground by a branch, but not much the worse. Four uninjured eggs were picked up! Some which were broken contained well-feathered young.

28th. A Blackbird's nest with three eggs. A Chiffchaff, trying to sing.

April 8th. Many Chiffchaffs. Two Willow Wrens singing.

9th. A bright sunny day, yet a small Bat was flying about,—evidently, by his sharp turns, feeding busily—in the full sunshine all the afternoon in my garden.

12th. A Redstart (male) picked up by one of my boys.

13th. Swallows reported at Wansford, probably Sand Martins.

15th. Sand and House Martins on the river at Wansford; no Swallows.

17th. Swallows.

18th. Capt. Vipan and I were beating sallows for moths at the Bedford Purlieus, and heard several Grasshopper Warblers singing.

19th. Tree Pipits, which have evidently been here some days, as they are quite settled down. Cuckoo.

20th. Nightingale singing.

24th. Corncrake noisy.

May 1st. Remembering that I saw Meadow Pipits on Sutton Heath in the breeding season last year, I and the children went

there to-day, and found four Titlarks' nests, one with four eggs. Not hitherto found breeding in this county, I believe.

4th. Lesser Whitethroat building in my garden. A Jay's nest with three eggs. Not a single Wood Wren to be heard anywhere about here this year. Since the growing up of the underwood in three or four of our woods they seem to have left the neighbourhood. We shot the first young Rooks. There are more Nightingales, I think, than usual.

May 26th to Aug. 16th. (Absent).

Aug. 16th. My man tells me that the Hawfinches have been more numerous in the garden, and more tiresome, than in any previous year we have been here.

17th. A Nuthatch in my garden. I have seen a few at times in the Bedford Purlieus, but none in my garden, and have often wondered why.

19th. Capt. Vipan tells me that there have been fewer Nightjars than usual in the Purlieus, and that the Grasshopper Warblers, which we found common on their first arrival, got scarce in breeding-time; it seems difficult to understand why. This bird escapes attention more than most others because of its shyness, and perhaps because few are acquainted with its note; in some cases I have found people sceptical as to its being the note of a bird at all. But I have found it in all parts of the county, though less abundant towards the south-west.

26th. I received from Irchester a common Sandpiper, shot on migration near Chester House. I have seen a good many in the Nen Valley, both in spring and autumn, but do not recollect having handled one in the county.

28th. I know of three Wood Pigeons' nests with eggs. Two are in the Purlieus; one in the chuchyard near my house, to which my attention was directed by seeing the bird carrying sticks.

Sept. 6. A Chiffchaff in song in my garden. We see the Nut-hatches every day here now.

6th to 13th. The above Chiffchaff, or another like him, stayed on the premises, and sang on every fine day. On the 10th a Willow Wren also singing. On the 11th both Chiffchaff and Willow Wren sang, and, to my surprise, a Garden Warbler also (at which I had a good look) was singing for a short time.

20th. Chiffchaff again.

21st. House Martins seen, with many Swallows.

24th. Ray's Wagtail; very late. In the western part of this county this bird is more abundant than in any part of England where I have been. Taking Wellingborough as a centre, a morning's walk in the breeding season before the females are sitting, would probably show a careful observer half a dozen pairs at least. In the autumn they leave the neighbourhood of water and resort to turnip-fields on higher ground, where, for the first fortnight in September, large numbers are to be found, as many as forty together. After this they get scarcer, and the present date is as late as I have seen them.

25th. A Goldfinch's nest—a second brood, no doubt—fledged. The nest was at the top of the Norway maple overhanging my alpine rockery. I heard the parent birds much excited over the event, and one fledgling fell dead on the rockery.

26th. Some *Phylloscopi* in the garden amongst the shrubs, but they were obstinately silent, and I could not identify them. They were very green in tint. Swallows many: one young House Martin among them. A lot of Gulls, high in air (like *Larus fuscus*) working to the south-west.

Oct. 2nd. A turnip-field near Elton swarming with Meadow Pipits and common Buntings.

12th. Bedford Purlieus. Saw a female Redstart on the Wood Farms. I ought to have shot it, as it was very likely *R. tithys* (it was not a Bluethroat). But I had only No. 5 shot. Fieldfares for the first time; the last I saw were at their nests at Tromsö. A large flock of Peewits.

17th. Swallows (three), near Wansford Station.

23rd. Going to Peterborough in the train, I caught sight of a large bird of prey mobbed by hundreds of Rooks. It was too far off to do more than guess at the species; but as I noticed that the wing-spread was about four times that of the Rooks, it was probably a Sea Eagle. I saw a Hooded Crow for the first time this autumn.

Nov. 22nd. Eight or nine Snipe in a turnip-field. I got one, but I don't think any one else saw them.

ON SHELL-COLORATION IN BRITISH EXTRA-MARINE
MOLLUSCA.

BY ARTHUR E. BOYCOTT.

A GOOD deal of somewhat acrimonious discussion went on some years ago in one of our scientific monthlies* with regard to the original colouring of British Land and Freshwater Mollusca. There were represented there, and elsewhere, two views: first, that "*Helix cantiana*, *cartusiana*, &c., were once banded species;"† this view was held notably by J. W. Taylor and C. Ashford; secondly, to J. W. Williams there seemed "scarcely any foundation for such a supposition." The chief reasons which induced the latter authority to hold the views he expressed seem to have been (1) that the primitive embryo shell is colourless: (2) that the nucleus in banded species is usually colourless; (3) that freshwater forms are usually unicolorous, and these have been subjected to less change of environment.‡

In the following remarks I may be able to suggest that both views are, in a way, correct; the difference perhaps lies only in what is understood by the term "once." The meaning of such a phrase as "original ancestors" may, and possibly has, led to much confusion. With regard to the prototype of the large group of Mollusca, or indeed of the Gastropoda only, the argument would be somewhat complicated. On this question evidence could only exist in a very hazy form, and any conclusion arrived at would be but dubious. But, judging from the general aspects of the question, it would seem probable that the first molluscan shell was horn-coloured, colourless, or white. For it would appear obvious that the mollusc would first get the trick of secreting a shell, and afterwards the trick of elaborating it for some useful purpose. Whether it were white, or transparent and colourless, would probably depend chiefly on the molecular condition of the

* 'Science Gossip,' vol. xxvi. p. 178 (J. W. Williams); *ibid.* p. 233 (S. Pace); *ibid.* p. 241 (S. C. Fryer); *ibid.* p. 274 (J. W. Williams); vol. xxvii. p. 73 (J. W. Williams); *ibid.* p. 121 (W. M. Webb). A bibliography of the subject is given by J. W. Williams in vol. xxvi. p. 44.

† "Valedictory Address," in 'Journal of Conch.,' April, 1888.

‡ 'Land and Freshwater Shells,' 1889, p. 19.

calcium carbonate, or other salt of which it might be composed. But "original ancestors" may mean something a good deal more recent than this hypothetical animal, all traces of which in any definite form have long since disappeared. The meaning which may reasonably be given to it is, those chronologically most distant molluscans that had organisations from which the various Gastropodous or Lamellibranchiate (for to these two groups, for obvious reasons, the question is confined) forms at present in existence have more or less immediately been derived.

There is now, I assume, no doubt that the extra-marine mollusca have been derived from marine forms by gradual adaptation to terrestrial or freshwater life. The freshwater forms have passed through an estuarine, brackish-water life, while the land species have been derived (1) from sea forms migrating direct across the littoral, (2) from those which have already taken to a freshwater or estuarine habit.*

The shells of marine Gastropoda are on the whole far more brightly coloured than freshwater forms; and at the same time are much thicker in substance. This latter enables them to withstand better the greater battering about to which they are subjected by the rough water in which they live, and, assisted by the coloration, to escape their enemies more easily. One would expect to find that marine mollusca would well illustrate cryptic coloration, for their enemies are very numerous and they are practically dead if once seen. As C. A. Westerlund† quaintly remarks, they are not remarkable for celerity of movement, and hence the chief thing in catching them is to find them. But, as a fact, very few cases of protective coloration have been recorded. One or two are given by Prof. Poulton‡ where corals are imitated; and a figure of a striped *Purpura lapillus* taken on striped rocks by Mr. A. H. Cooke.§ If, however, we could see with fishes' eyes, we should probably find here, as in other cases, that protective colours are far commoner than we suppose.

* Further, certain land forms may take to an aquatic life. *Limnaea truncatula*, e.g. (really more a terrestrial than an aquatic species) looks as if it were migrating one way or the other; either following allied forms into the water or leading them on to land.

† 'Fundamenta Malacologica,' 1892, p. 17.

‡ 'Colours of Animals,' 1890, pp. 70—71.

§ 'Cambridge Nat. Hist. vol. iii. p. 90, fig. 35 (2).

But when we reach the tranquil waters of our ponds, we find the characteristic genera,* *Limnæa* and *Physa*, have monochromatic horn-coloured shells, of a comparatively thin substance. Their apertures too are, as a rule, large in comparison with the whole shell, and they are in the habit of protruding a considerable portion of their bodies as they move about. All this points to a safer life than marine mollusca lead. In the sea there are almost innumerable enemies devouring any mollusca they can find. Gwyn Jeffreys† enumerates a long list of destructive animals, from the cod to star-fishes; and mentions that the number of *Turtonia minuta* in the stomach of a small mullet from Lough Larne was estimated by Hyndman at 35,000. In fresh water their enemies are far fewer; cod and the rest of the large fish are replaced chiefly by the trout which occurs in few such ponds as *Limnæa* likes. Gwyn Jeffreys‡ records a case where a specimen of *L. peregra burnetti* was found in the stomach of a gillaroo trout (*Salmo stomachicus*) from Ireland;§ and I have heard of several shells being found in trout from the Lugg. The lobster, which readily breaks open even a whelk,|| is replaced by *Astacus*, at once less numerous and less powerful; though it will, however, eat molluscs, shells and all.¶ Among other enemies are sticklebacks, birds (especially ducks), frogs, &c., but the number of mollusca destroyed annually by all these must be far less, both absolutely and relatively, than in the sea.

I have for some time been inclined to think that the shell of *Limnæa* is degenerate, and that this degeneracy has arisen from its quieter organic surroundings.** Of course, the physical conditions of animal life are far more severe in fresh water than in the sea. Organisms are subjected to the drying up of ponds, con-

* These may, however, occur in the sea; cf., e.g. K. Semper, 'Animal Life,' 1890, p. 145.

† 'British Conchology,' vol. i. p. lix; cf. A. H. Cooke, *op. cit.* chap. iii.

‡ R. Rimmer, 'Land and Freshwater Shells,' 1880, p. 59.

§ Prof. Seeley considers that the muscular thickenings of the walls of the stomach characteristic of this species ("local race"), have arisen from its feeding on *Limnaea*, *Aucylus*, &c. 'Freshwater Fishes of Europe,' 1886, p. 280.

|| Gwyn Jeffreys, *op. cit.*, *loc. cit.*

¶ Huxley, 'Crayfish,' 1884, p. 9.

** Darwin ('Descent,' ed. vi. p. 83) makes a similar remark, but draws a somewhat different conclusion.

siderable and sudden variation of temperature, consequent on shallow water, and to the action of torrents. This generally leads to important modifications: free-swimming forms are lost, e.g. in *Anodonta* and *Astacus*, where the *Nauplius* and *Zoea* stages are entirely slurred over; and in *Hydra* we find the medusiform person reduced to a mere gonadal excrescence on the hydriform person. Indeed, Prof. Sollas remarks,* "As *Spongilla*, however, is a fresh-water form, anomalies in its development might almost be expected." But the colouring of the shell cannot depend so much on its physical, inorganic, as on its organic surroundings. The only differences, which, I imagine, are thus produced, are in the ground colour e.g. of "*Planorbis*" *corneus*, living in ferruginous waters. Mr. E. W. Bowell assures me that here the reddish colouring is found in the prismatic layer, not merely as a superficial coating.

It is very interesting to note, that of the five genera of more brightly coloured British fresh-water mollusca, four are closely connected with the sea. *Neritina* is found in fresh water, brackish water, and salt water (and on land); *Dreissena* is closely allied to *Mytilus*, and was undoubtedly recently a marine form, a fact which is strongly attested by its still possessing the free-swimming larva, which in *Unio*, &c., has been so largely modified; † *Unio* and *Anodonta* are nearly allied to sea forms. *Paludina* alone offers considerable difficulties: its affinities with any recent marine form are by no means obvious, and there seems good evidence to show that the "elaborately coloured" forms arose from simple and unornamented" ones.‡ We have then here to suppose that for some purpose not very clear (probably cryptic),|| this genus has been modified since its habitation in fresh water, which has lasted for some time, Cretaceous onwards. The allied British genera, *Bythinia* and *Valvata*, have the usual horn-coloured shell, which also exists, somewhat strangely, in the brackish-water genus *Hydrobia*.

* Article "Sponges," 'Encyclopædia Britannica.' Reprint, 1891, p. 52.

† Korschelt, Sitzungsber. Naturf. Berlin. 1891, p. 131.

‡ I do not think though that the colours in England ever reached Da Costa's brown with red transverse stripes. See 'British Conchology,' 1779, t. vi. fig. 2.

§ A. R. Wallace, "Darwinism," 1889, p. 381: 'Nature,' xiv. p. 275.

|| The green and brown stripes may resemble water-weeds on a reddish or brown mud.

There are several small points which seem to indicate a more elaborate ancestral shell to some of our species: for instance, the embryo hairs on *Paludina vivipara*,* and *Planorbis corneus*,† the occasional reversion to a banded form of *Limnæa peregra*‡ and *Bullirus hypnorum*. Among the land forms, I fancy the peripheral band and embryonic hairs which occur in *Fruticicola rufescens*, *F. cantiana*, &c., have the same significance.

It is possible that *Limnæa* may be adventitiously protected by the thick growth of weed§ which so often covers the shell.

To turn to terrestrial forms: here we find two great main divisions of coloration—(A) oligochromatic approaching polychromatic, as in *Tachea*, &c.; (B) monochromatic, the prevailing form.

Of the former class two explanations are possible: (1) They have retained the pigmented shells which were of use to them in the sea. But this is rendered improbable because (α) the colours which were of use to them in their marine habitat would probably be useless|| on land; and (β) the colours would hardly have remained the same while their internal organisation was undergoing such extensive modifications. (2) They have acquired their colours, the migrating species having been either coloured or uncoloured. This view I think is alone tenable.

The monochromatic species (if descended from coloured forms) have become so for the same reason as *Limnæa*; the life they lead is distinctly quiet and retired. The brightly coloured species all live a more exposed life (as one might expect) than the dull ones. Genera like *Hyalinia* live under stones, among dead leaves, &c., and by no means court a bright light. Bright places, too, are generally too dry for them.

The two groups may likewise be distinguished, I think, by their hibernation. Group A is characteristic of a warmer climate than group B, which is essentially boreal. *Tachea* and *Cryptom-*

* J. S. Kingsley ('Riverside Natural History,' vol. i. p. 341, fig. 432) figures a *half-grown* specimen, with bands and rows of upright spines; in error apparently.

† For a figure, see J. W. Taylor's 'Monograph British Land and Fresh-water Shells,' vol. i. p. 74.

‡ This may be pathological: J. W. Taylor, *op. cit.* i. p. 102.

§ Cf. Poulton, *op. cit.* p. 77.

|| Of course the colours may be at present useless, but this appears improbable.

phalus, e.g. hibernate very rigidly through a winter however mild; while *Hyalinia*, *Fruticicola rufescens* and *hispida*, and especially *Vitrina* (to give a few examples only), keep fairly lively all through the winter.*

Certain species (*Buliminus obscurus*, e.g., and " *Helix* " *obtecta*, from Madeira), though monochromatic, have been supposed in their younger stage to practice concealment by coating their shells with small particles of dirt; but doubt has recently been thrown on this idea, and the coating may well be accidental.

Among the coloured species, one group may easily be separated off: the black and white shells of *Xerophila* and *Cochlicella*. This form is one essentially frequenting dry heaths, &c. S. S. Pearce thinks that some forms of this group (*X. caperata*, var. *ornata*) may be sematic, and warn the sheep, which frequent its habitat, that it is not very palatable;† but there used to be an idea that Southdown mutton owed its delicate flavour to this strange diet.‡ However, taking into consideration the fact that nearly all desert shells show a tendency towards leucochroism, I am inclined to attribute their pale, opaque coloration to the fact, that they are hence more able to withstand the great changes of temperature to which their open habits must expose them.§ Indeed, Bouchard-Chantereaux states that *X. virgata* never hibernates, and does not seem to mind the cold; and it must be remembered that extensive, dry areas, if very hot in the daytime, at night are extremely cold.|| I suspect that *Xerophila* may be, in part, cryptically coloured. It is my experience, at any rate, that however much the collector knows the shape, size, and colour of the species he is looking for, or however plentiful they may be, till he catches sight of one, the ground looks quite fruitless; when one

* R. Rimmer, *op. cit.* pp. 96, 131; A. H. Cooke, *op. cit.* p. 24. Quite recently, after two very sharp frosts, and while there was ice on all the ponds, I found *H. nitidula*, *Patula rotundata*, and *F. hispida* in abundance, crawling freely on the under surface of a large stone tilted up against a shed on a very exposed hill.

† 'Journal of Conchology,' vi. p. 123; 'Cambridge Nat. Hist.' iii. p. 89.

‡ Borlase seems to be the originator of this statement, cf. Harting, 'Rambles in Search of Shells,' pp. 75, 76.—ED.

§ See Poulton, *op. cit.* pp. 16, 17.

|| I have seen *X. caperata* crawling over moss when snow was quite thick on the ground.

is seen, one finds out how numerous they are. This applies chiefly to *X. ericetorum (itala)*; *X. virgata* is easier to see. I have noticed near Oxford that this latter species is very fond of sitting exposed on the most prickly thistles in the neighbourhood.

With regard to the remaining bright species in the British fauna: *C. aspersus* more or less harmonises with old walls, &c. *Arianta arbustorum* and *T. nemoralis* and *hortensis* are more difficult to understand. F. E. Beddard* says the colour of *Tachea* must be either cryptic or epigamic, and very naturally objects to regarding them as sexual in hermaphrodite animals. Eimer and C. Darwin† also agree that sexual selection has not modified Mollusca.

With regard to the colours of *T. nemoralis*, Eimer,‡ quoting Leydig, says the amount of moisture in the air has considerable effect, and adduces in support of his view the various colours found in the Rhine Valley, the colour apparently growing darker as the sea is approached. I have looked about for further evidence, but am unable to find anything; nor do I think the amount of moisture can have very much influence. If it has, I imagine it may be because in humid atmospheres the night and day temperatures are more nearly equal, and that therefore a darker colour can do no harm in the respect of warmth, and may help in concealing the animal.

It is very hard for us to see here how the ordinary colours of *Tachea* can be cryptic, and to our eyes they certainly are not. It would appear, too, that they are not so to Thrushes, Blackbirds, &c., which kill considerable numbers. They can hardly be sematic, as the birds are evidently fond of them, for "thrushes' stones," though more obvious in winter, when other food is scarce, may frequently be seen in summer, when worms and suchlike are abundant.

W. H. Dall § has suggested that the striped shells of, e.g., *T. hortensis lutea*, B.F. 12345, are cryptic among the stripes of green and dry grass, &c., on the banks they frequent. I cannot see it myself.

A good deal has been said about the effects of food on the colour, but experiments seem to give such varying and conflict-

* 'Animal Coloration,' 1892, p. 56. † 'Descent,' ed. 1871, vol. i. p. 326.

‡ 'Organic Evolution,' p. 187, quoted by F. E. Beddard, *op. cit.*, p. 56.

§ Quoted by J. W. Taylor, *op. cit.*, vol. i. p. 95.

ing results that very little can be deduced from the observations made.* Perhaps it is the fact, not the nature, of the sudden change which makes the difference.

Generally speaking, one thing is obvious, that it is those species which live most freely exposed to light which chiefly develop pigment. This is in accordance with the general rule, and, plainly, in the dark, sematic, cryptic, or epigamic colours, would be of small service.

Under certain circumstances a monochromatic shell can adapt itself by cryptic, isochromatic coloration. Thus a case of albinism in *Pupa cylindracea* on a white wall has been recorded.†

Simroth ‡ suggests that the bands have something to do with the large superficial blood-vessels,§ and there is a good deal of evidence which rather attracts one towards this view.

Prof. Semper || gives a few very interesting cases of pseud-aposematic coloration among land-snails from the Philippine Islands, but this appears to be very rare, so far as our observations have at present gone.

Finally, we may say that the whole matter is wrapped in considerable obscurity, and, at any rate at present, it seems impossible to formulate any theory which will cover all cases. Personally, I fancy that the colours of *Tachea* (and of *Xerophila* partly) are cryptic, or are trying to be so. It is only by very careful observations and accumulation of large masses of material that such questions can be made out satisfactorily. To return to the beginning again, I only hope that in these disconnected jottings I have made it clear that Mr. J. W. Williams's idea may be right, if a very ancient prototype is discussed (and his embryological reason would naturally only apply to this), while the opposite view may turn out to be correct if more recent forms are under consideration.

Since writing the above, I have seen an interesting paper by Mr. W. M. Webb,¶ in which he shows that *Clausilia* in Britain is

* See *ibid.* i. pp. 91, foll.

† J. W. Taylor, *op. cit.* i. p. 92.

‡ See *ibid.* i. p. 96.

§ Cf. the views of Alfred Taylor, 'Coloration in Animals.' 1886.

|| *Op. cit.* pp. 393, foll.

¶ "Protective Coloration in British Clausilias," in 'Science Gossip,' n. s. vol. ii. No. 21, 227.

cryptically coloured with reference to such botanical remains as shrivelled bud-scales, &c. I cannot, however, regard this as a very good case, for *Clausilia* is by no means always found in the situations indicated.

SOME NOTES ON THE RED-BACKED SHRIKE (*LANIUS COLLURIO*).

By O. V. APLIN, F.L.S.

FOUR or five years ago, while engaged in collecting evidence of the distribution of the Red-backed Shrike in these Islands,* various items of information relating to the plumage and habits of this bird came into my hands, and at the same time my attention was turned to some points relating thereto. The facts I then collected were carefully noted down, but were put on one side, partly because I was just going abroad, and partly in the hope that I should be able to add to them at some future time. However, other things ornithological have occupied me, and when I came across the little bundle of notes the other day, I thought that the best way to draw attention to the subject, and get further light thrown upon it, would be to bring them under the notice of ornithologists just as they were.

The ordinary dress of the female Red-backed Shrike is described as having the whole of the upper surface of the head and body reddish brown; wings like those of the male, but the rufous margins narrower; tail-feathers above brown, tinged with red, the outer edges of the web of each outside tail-feather dull white; under surface of body and sides greyish white, crossed with greyish brown semilunar lines ('Yarrell,' 4th edit.). The young males are said to be like adult females, but to have the darker semilunar marks on the back as well as on the breast. Mr. Howard Saunders writes ('Manual of British Birds') that the female ordinarily has the upper parts and tail russet-brown, with faint crescentic bars on the mantle; and I may add that I have known the female breeding while still showing fairly conspicuous semilunar lines on the upper parts. A bird very much in this stage of plumage is figured in Morris's plate (1851 edition). The dark crescentic lines in this specimen are to be seen on the crown of the head, as well as on the upper

* Trans. Norfolk and Norwich Nat. Soc. vol. v. p. 286.

parts of the body, but that instances are on record of the assumption of a plumage similar to that of the male. The same author describes the young bird as whiter on the forehead, duller and less rufous brown on the upper parts, and more barred both above and below. The young Shrikes in early August appear, at a little distance, in life, considerably paler than the female. Meyer ('Illustrations of British Birds,' 8vo, 1842, vol. i.) describes the female as ferruginous brown on the upper parts, tinged on nape and rump with ash-grey; and the young of the year to "nearly resemble the female, but some of the feathers on the rump have a narrow dark border." He figures, in his beautiful plate of this species (No. 43, upper figure), a very curious bird. The crown is grey, strongly washed with brown, and closely marked with clearly defined semilunar dark lines; mantle light rufous brown, differing not much from that of the adult male; rump grey, marked with a few semilunar dark lines; under parts marked with dark lines rather closely. I believe Meyer always drew and coloured his figures from specimens, and he lived where these Shrikes were common; but what stage of plumage his bird was in it is hard to say. It might be an old female in the dress described by some as assuming the plumage of the male, if it were not for the marking on the crown of the head. Can it be a male over the first moult? I am rather inclined to think that Meyer must have exaggerated the clearness and abundance of the semilunar dark markings. Jenyns and others refer to a shade of grey on the head or nape, and rump of females, and Dr. Sharpe ('Handbook of British Birds') says that "the grey of the head" of the female is "duller and washed with brown." Seebohm wrote that the female usually differs considerably from the male; the whole of the upper parts reddish brown; wings similar in colour to those of the male, but rufous margins paler and not so broad. He says nothing of crescentic marks on the upper parts. The cases in which the female is found "very, if not exactly similar in plumage to that worn by the cock" are, in the 4th edition of 'Yarrell,' suggested to be cases of "sexual dimorphism." The case of the female shot by Blyth and stated by him to be "partly in the male plumage; but the ovaries were perfect and contained eggs; and it was in company with a partner of the other sex," is referred to in 'Yarrell'; and to the foregoing account Blyth added that he

had "reason to believe that this was a young individual, that is to say, a bird of the preceding year." This belief of Blyth is, in the work before alluded to, said to show that the assumption of some writers that it was only the very old hen of this Shrike which acquires the cock's plumage, could not explain the fact. But Blyth merely had reason to believe his one specimen was a bird of the previous year; we have not the grounds for his belief, and it would be difficult to be certain of the fact in the case of a breeding bird in an almost unknown stage of plumage. Unfortunately, there is a great dearth of detailed descriptions of the plumage of these so-called female Shrikes assuming the plumage of the male. I have, personally, only met with one example of a female in a dress approaching that of the male, and the character of its plumage (especially the whiteness of the under parts and the clearness of the markings) gave me the impression that it was a very old bird. It was shot in Oxfordshire, in the second week in July, 1890, and was in company of an ordinary male at the time. The following is the description of this specimen:—Crown ash-grey, tinged strongly with brown; nape ash-grey; above the eye a white streak; ear coverts dark brown. Martlet and wing coverts warm brown. Rump and tail coverts grey tinged with brown, and with faint traces of dark marks at the end of some of the tail coverts. Tail dark brown, outside feathers edged and tipped with white. Chin, throat, sides of neck and breast and belly and under tail coverts dim white, marked on breast, sides of neck, and flanks with clearly defined dark crescentic lines; throat marked slightly; belly, under tail coverts, and chin unmarked. There are no signs of crescentic marks on the head, back, or rump. These marks, when present, are always a sign of immaturity.

The question is, whether this (or something very like it) is not really the normal, fully adult plumage of the female. That female Shrikes breed in the plain warm brown dress, referred to in this paper, is no proof that the latter is the ordinary dress of the adult; for Kestrels commonly breed before they attain the blue tail (barred with black) of the old female. In June, 1891, I saw in Switzerland another female Shrike with the colouring of the upper parts approaching that of the male. This was in the valley of the Engelberger Aa, near the Lake of Lucerne, where the Red-backed Shrike is common. It was one of a pair which

seemed to have a nest in some thick bushes, and I had a very close view of them both through my glasses. This female had the crown, nape, and rump brownish grey, and the mouth warm brown. I saw (*inter alia*) another female the same day, which appeared to be plain brown above, and seemed to be an unusually pale-coloured bird, but I did not get very close to it. From the descriptions of Meyer, Jenyns, &c., and from the specimens mentioned, it is clear that plain reddish brown, with or without dark crescentic lines, cannot be considered as the normal colouring of the upper parts of the fully adult female Red-backed Shrike in breeding plumage. And I would suggest the possibility of the birds hitherto referred to as assuming the plumage of the male, being merely old examples in the dress of the fully adult female.

The fact that only a small number of female Red-backed Shrikes have been found in what has been regarded as extraordinarily bright plumage, is not in any degree repugnant to this theory. The adult female Woodchat Shrike is sometimes described as very similar to the male; but more usually as being generally duller in colour; and I have several times seen pairs sitting together on a bush, the female of which was a much duller bird than the male, and had the reddish chestnut of the head and nape both duller and considerably paler.

The only doubt which has arisen in my mind as to the propriety of advancing the above suggestion, has its origin in the fact that I have been unable to find a description of the *under* parts of the birds said to be assuming the male dress. I cannot find out whether these birds had the under parts marked with crescentic dark marks (invariably the case in females in my experience), or had them unmarked, and washed with pale red, like ordinary adult males. If the latter is the case, of course my little theory falls to the ground.

In any case it seems to me that the subject of the plumage of female Red-backed Shrikes is by no means thoroughly understood at present, and it is chiefly with a wish to find out more about it that these remarks have been penned.

I have not seen it stated in any work on British Birds that the nesting dress of the male of this species is different from that of the female. Through the kindness of Mr. F. Coburn, of Birmingham, I was able to satisfy myself that it is so. The following is a description of two birds taken in a trap-cage in a

garden at Northfield on August 14th, 1891, which he was good enough to send for my inspection. The colours of the soft parts were taken down by Mr. Coburn himself.

Male. Crown, nape, ear-coverts, and rump brownish ashy-grey, changing to brown on the mantle, and light rufous-brown on the wing and upper tail-coverts; all the feathers marked more or less with subterminal blackish lines and having pale edges, either buff or ashy; the lines semilunar and clear on the mantle and upper tail-coverts. Primaries and secondaries dark hair-brown, the latter with clean-cut buff edges to outer web and tip; the tertials with the clean-cut edging, and, inside it, a dark line. Tail hair-brown, all the feathers tipped with dull black and white in succession; in the outer pair these lines are carried round to the webs, and in the next pair partly so. Under parts dull white, marked very slightly on throat and across upper breast, and strongly on sides of throat and neck and flanks, with more or less semicircular dark lines. The head and nape have a grey appearance, and shade into the warm colour of the back; over the eye is a very indistinct line of buffy white, marked with dark specks.

Female. Crown light rufous-brown, feathers with subterminal blackish band. From the beak over eye an irregular line of buffy white, broadest immediately behind the eye. Nape greyer and less distinctly lined, hardly at all, in fact, and some of the feathers unlined. Ear-coverts rufous-brown marked with dull black. Mantle and wing-coverts warm rufous-brown, the feathers with broad subterminal lines of black, and some of them shading to buff on edge on lower back and greater coverts. Rump greyer, marked the same. Upper tail-coverts warm rufous-brown, with a speck or two of black on a few feathers. Tail hair-brown; central feathers warmly tinged rufous, outer pair edged with black on inner web (extending round part) and then with white all round; second pair similar at tip, third and fourth indistinctly so. Under parts dirty white, sides of neck and flanks marked with more or less indistinct and irregular blackish subterminal lines. A buffy tinge on upper breast and signs of dark markings almost wanting. Very little lined on under parts, and actually less than in the male of the same age.

This is Mr. Coburn's description of the soft parts. Tarsus and toes slaty drab with a tinge of blue, at joint of tibia and

tarsus distinct cobalt-blue. The legs and toes would probably be blue whilst the nestlings were very young. Nails umber-brown. The bill has the upper mandible blackish umber, shaded round margin with pale horn-white; lower mandible obscure horn-white, faintly shaded at end with blackish umber. Gape and inside of bill flesh-white, with a tinge of lemon-yellow at ends. Irides apparently very dark hazel. Eyelids umber-black.

Mr. Coburn was good enough to send me the bodies immediately they were skinned, with labels attached, and the mounted specimens with corresponding labels a few days later; and I am responsible for the identification of the sexes on the understanding that the labelling was correct. That this was so, there is, of course, no reason to doubt.

My correspondent Mr. G. W. Bradshaw sent me, for identification, a strange egg which had been found in a nest of the Red-backed Shrike (containing also three eggs of the usual grey type), taken at Burwash, Sussex, on May 18th, 1891. It proved, as I expected, to be an egg of the Cuckoo, and was smaller than the Shrike's eggs. The Red-backed Shrike is included in Mr. E. Bidwell's list of birds in whose nests the Cuckoo occasionally deposits her eggs, and it is marked as having been so selected in Great Britain; but perhaps this additional instance may be worth recording.

NOTES AND QUERIES.

MAMMALIA.

White Stoats in Mild Winters.—During the past month I had brought to me a Stoat which was nearly pure white, with the exception of the top of the head and neck, and a very thin line down the middle of the back. Seeing that the change from the summer to the winter dress is due not to any casting of the fur, but to an actual change of colour in the fur itself, generally admitted to be due to the action of severe cold, the question naturally arises why the animal should adopt its winter coat during such a very mild season as the present, and I suppose that the answer is, that the phenomenon of change has become to a certain extent hereditary, irrespective of cold; though, so far as my experience goes, white Stoats are more plentiful in severe winters than in mild ones.—OXLEY GRABHAM (Flaxton, York).

Long-tailed Field Mouse of the Outer Hebrides.—Referring to Mr. W. E. de Winton's remarks respecting this mouse (Zool. 1895, pp. 446, 447), and his neglect to compare his specimens with the one already recorded and at the British Museum, it would be of interest if he, or Mr. Oldfield Thomas, would kindly do so, and forward the particulars for publication in 'The Zoologist.' Should my description be somewhat inaccurate, it is excusable, for the specimen was sent to the Editor upon my return to St. Kilda, with a request to have its description brought before the readers of this Journal, and was afterwards described by me from memory only, and without any comparison ever having been made with the ordinary type. It is hardly worth while to mention the difficulty of obtaining further specimens from St. Kilda, having sent out spirits for preservation of specimens, a supply of arsenical soap having been left on the island, but all to no purpose; and until I am able to pay another visit, or others interested in the subject can spend a few days at least on those lonely rocks, little more than we know at present is likely to be published. This Mouse, I think, is by no means numerous there.—J. STEELE ELLIOTT (Dixon's Green, Dudley).

Hedgehogs in Winter.—Bell, in the second edition of his 'British Quadrupeds' (p. 109), remarks that the "hybernation of the Hedgehog is, perhaps, as complete as that of any animal inhabiting this country. . . . It lays up no store for the winter, but retires to its warm soft nest of moss and leaves, and, rolling itself up into a compact ball, passes the dreary season in a state of dreamless slumber, undisturbed by the violence of the tempest, and only rendered still more profoundly torpid by the bitterest frost," and, as a rule, in my experience this is quite true, for I once had, for three or four years, a score of Hedgehogs in a large walled-in garden; and, whether the winter was mild or severe, they never moved when once they had taken up their winter quarters, which were always in the manure covering a strawberry-bed, and in that laid at the roots of a large patch of lavender; but, *audi alteram partem*, a year or two ago, some unfamiliar footprints being seen in the snow, they were tracked to a thick hedgerow, and from a mass of dead leaves *Erinaceus europaeus* was unearthed in quite a lively condition; and in January I knew of a fine old Hedgehog which periodically issued forth from its lair in the bottom of a thick fence, the grass leading to the same being all trodden down, and a regular track made. Sometimes from home, and at others cosily rolled up in the middle of its domicile; but I am afraid it must have resented my visits and taken up other quarters, for it is now missing.—OXLEY GRABHAM (Flaxton, York).

BIRDS.

The Dispersal of Acorns by Rooks.—In an extract from the Report of the U. S. Department of Agriculture, given under the above heading

on p. 20 of 'The Zoologist' for January last, the following passage occurs:—" . . . it has been shown that the vitality of such seeds is not impaired by the partial digestion to which they are subjected." May I ask, in connection with the above, whether there is any truth in the statement, which I have seen in print elsewhere, to the effect that the germination of such seeds (holly, e.g.) as naturally lie dormant a year is accelerated a twelvemonth by passing through the bodies of birds?—M. C. H. BIRD (Brunstead Rectory, Norwich).

Roosting Habits of the House Sparrow.—Between Eltham and Sidcup, Kent, are some birch-thickets in which Pheasants are preserved. House Sparrows come from all directions to sleep in these places. They begin to arrive at about 2.30, and, until after four o'clock, they are continually coming, in small parties of rarely more than thirty birds, flying high and fast, and seemingly from some distance. On December 29th last I watched from 3.30 till 3.50—twenty minutes—and counted 453 Sparrows, besides a few Greenfinches, descending into a small area some thirty yards square, in one thicket. On another day, while walking 300 yards, I saw 153 Sparrows descend at the same place. They roost in small groups of from thirty to sixty birds, in the upper branches of the birches, many of them being in full view from the road, and all of them directly exposed to any rain that may fall during the night. In winter Sparrows ordinarily sleep either in their nesting-places in walls, or ricks, ivied trees, hedges, &c. I do not know of any British bird smaller than a Starling which ever selects so exposed a dormitory as that above mentioned. In the same district, also, Sparrows sometimes build in elms and other large trees, many of their nests being placed far out on the branches, domed, and strong enough to withstand the winter; but they are not occupied at that season.—CHARLES A. WITCHELL (Sidcup, Kent).

Nesting of the Goldcrest.—I am sorry that in jotting down a casual remark, *currente calamo* (Zool. 1895, p. 448), I should have seemed to discount the interest of Mr. Davenport's note on this subject (Zool. p. 21); for nothing was further removed from my purpose than to undervalue the original observations of so good a field-naturalist. Contrariwise, I am looking forward with anticipation of pleasure to Mr. Davenport's forthcoming book, which I feel sure will receive a hearty welcome from all ornithologists.—H. A. MACPHERSON (Carlisle).

Hybrid Crows.—Some years ago I mentioned, in 'The Birds of Cumberland,' two mounted specimens which combined the characteristics of the so-called Hooded and Carrion Crows. I had recently an opportunity of purchasing one of these birds on the death of its owner, a man named Barnes, who shot it in Wastwater. It has the ash-coloured breast and collar of the so-called Hooded Crow, but the belly and the entire back are

pure black. I mention this because I cannot recall having met with examples of the so-called crosses of the two forms or species in any public museum in this country, although the Natural History Museum at South Kensington contains Mr. Seebold's series of the eastern form of the Carrion Crow in much variety. It is quite possible that cross-bred birds are exhibited in one or other of the provincial museums, but I have at present no note of the fact.—H. A. MACPHERSON (Carlisle).

The Effect of Thunder on Pheasants.—The effect of thunder, or the firing of cannon, on Pheasants has often struck me as very curious: either of these sounds setting the cock birds off crowing as if in defiance. At a place between five and six miles distant from the garrison town of Colchester, I have heard Pheasants close to me echoing each report of the artillery practising there; and have on many occasions noticed the same thing elsewhere. The crowing sounds more like the answer to a challenge than the expression of fear.—G. T. ROPE (Blaxhall, Suffolk).

[This observation is not new. If we mistake not, Gilbert White remarked a century ago that the Pheasants in his neighbourhood crowed when big guns were fired at Portsmouth and the wind was blowing from that direction. Charles Waterton also, in his 'Essays on Natural History,' (first series, 1837), makes the following remarks on the subject:—"The Pheasant crows at all seasons on retiring to roost. It repeats this call often during the night, and again at early dawn; and frequently in the daytime, on the appearance of an enemy, or at the report of a gun, or during a thunder-storm."—ED.].

Great Black-backed Gull in London.—On Feb. 4th inst. I observed three mature specimens of this Gull flying along the Embankment near Blackfriars Bridge. With the exception of one or two of the secondaries of one of the birds being missing—possibly due to an early moult—they were a fine-looking trio. As this bird has been described as rare in London, and the Editor has not included it in his note on "Sea Gulls in London," in 'The Zoologist' for March, 1895 (p. 109), this note may prove interesting. I see that in 'Nature Notes' for February of this year, at page 33, Mr. A. Holte Macpherson mentions his observation of an adult bird of this species flying over the Thames opposite the Temple Gardens on Nov. 5th, 1895.—JOHN H. TEESDALE (St. Margaret's, West Dulwich).

[Apparently our correspondent has not referred to what has been published of this species in 'The Birds of Middlesex' (p. 263), where it is stated that it may often be seen towards the mouth of the Thames, and occasionally strays up the river to a considerable distance. One was killed as high up as Putney during a frost; and, further inland, examples have been seen and shot at Kingsbury Reservoir. The changes of plumage noticed in a tame bird of this species, kept under observation for two and a half years, are described in the same volume.—ED.]

FISHES.

Scorpaena dactyloptera at Lowestoft.—I am indebted to Mr. A. Patterson for the opportunity of examining a second specimen of this fish, which was taken off Lowestoft on Dec. 10th, 1895. It was eight inches in length, the former example, captured off Yarmouth on April 29th, 1894, as reported in 'The Zoologist,' 1894, p. 430, measured $5\frac{1}{4}$ inches only.—THOMAS SOUTHWELL (Norwich).

SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

January 16th, 1896.—Mr. C. B. CLARKE, F.R.S., President, in the chair.

Messrs. O. V. Aplin and William Cole were elected Fellows of the Society.

On behalf of Mr. G. H. Adcock, F.L.S., of Geelong, Victoria, Mr. A. B. Rendle, F.L.S., exhibited and made remarks upon some photographs of *Hakea grammophylla*, F. Muell., a little-known species of the Proteaceæ, of local distribution in South Australia.

Mr. G. F. Scott Elliot exhibited specimens of bark-cloth from Uganda, and the shores of Lake Tanganika, and gave an account of the mode of its preparation from the bark-cloth fig, and of the fleshy Euphorbias and Acacias of British East Africa, illustrating his remarks with lantern-slides from photographs taken by himself. Mr. Elliot remarked that the native cloth manufactured on the shores of the Tanganika was made on the same sort of rough loom which he had seen employed near Sierra Leone, and as the Tanganika is, ethnologically and botanically, part of the west coast, that it was interesting to find that the methods employed in countries so far apart were so similar in detail. A discussion followed in which Messrs. Rendle, E. M. Holmes, T. Christy, and W. Carruthers took part.

On behalf of Mr. W. R. Ogilvie Grant, Mr. Harting exhibited some land-shells, and eggs and skins of two rare Petrels from the Salvage Islands, lying between the Canaries and Madeira. These islands were stated to be of volcanic origin, faced with steep rocks from 100 ft. to 300 ft. in height, and covered with loose sandy soil, the vegetation consisting chiefly of the wild tomato, *Lycopersicum esculentum*, the ice-plant, *Mesembryanthemum crystallinum*, *Asparagus scoparius*, and *Cistanche lutea*. Amongst the shells collected were *Helix ustulata* (peculiar to the Salvage Islands), *H. pisana*, *H. macandrewi*, *H. polymorpha*, *Rumina decollata*, *Littorina striata*,

Cerithium rupestre, and *Nassa conspersa*. *Helix paupercula* was said to furnish the chief food of the Tarantula spider, *Lycosa maderiana*, and entire shells of *Helix pisana* had been found in the stomach of a Kestrel hawk shot on one of the islands. The Petrels exhibited with their eggs were *Pelagodroma marina* and *Oceanodroma cryptoleucura*, which were found nesting in burrows, after the manner of the Shearwater, *Puffinus kuhli*, of which great numbers were also breeding there. Mr. Howard Saunders offered some critical remarks on these birds, referring chiefly to what was known of their geographical distribution.

Mr. George Murray exhibited full-grown complete specimens of some giant Laminarians from the Pacific, *Nereocystis*, *Egregia*, and *Macrocystis*, and some very fine specimens of *Postelsia*, collected by Mr. W. E. Shaw on the coast of California. He made some remarks on the distribution of Californian *Laminarieæ*, and illustrated some points in the structure of their reproductive organs.

A paper was then read by Prof. T. Rupert Jones and Mr. Frederick Chapman on the relations of the Fistulose *Polymorphinæ* and the *Ramulinæ*, with the view of showing the existing evidence for or against the suggestion that several specimens referred to the latter of these two subfamilies may really belong to the former. With this object the authors enumerated, firstly, all the known examples of *Polymorphinæ* having fistulose, tubulose, and racemose outgrowths, and, secondly, all the *Ramulinæ* known, whether published or not, figures for comparison being supplied and supplemented by lantern-slides. Sixty-nine figures of the former and forty-four types or species of the latter were shown on the screen. The most interesting feature in *Ramulina* was said to be the Polymorphine character of the initial chambers in some good specimens of *R. grimaldii* and *R. cervicornis*, and an approach to Polymorphine structure in the swollen bifurcations in other species. Just as Milioline beginnings in *Articulina*, and Nodosarian in *Frondicularia*, &c., do not deprive these of their independent standing as genera among Foraminifera, so *Ramulina* is distinct from *Polymorphina*. Other features and characters were also referred to, giving the genus a substantial position among the hyaline or perforate Foraminifera. In some respects this paper may be regarded as supplemental to the monograph on *Polymorphina* by Messrs. Brady, Parker and Jones, Trans. Linn. Soc. vol. xxvii. (1870).

